

GENERAL
THIS PROJECT INVOLVES THE INSTALLATION OF A PERMANENT TRAFFIC SIGNAL AT THE MD 115 AND
NEEDWOOD ROAD INTERSECTION. MD 115 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

THE INTERSECTION WILL OPERATE IN A NEMA THREE-PHASE, SEMI-TRAFFIC ACTUATED MODE, WITH THE MD 115 APPROACHES RUNNING CONCURRENTLY, AND THE NEEDWOOD ROAD APPROACH OPERATING AS A SEPARATE PHASE. EXCLUSIVE/PERMISSIVE LEFT TURN PHASING WILL BE PROVIDED FOR WESTBOUND MD 115.

INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT PHASE CONTROLLER WITH TWO (2) FOUR-CHANNEL RACK MOUNT LOOP DETECTOR AMPLIFIERS, AND L.A.U. PANEL WITH HARNESS HOUSED IN A BASE MOUNTED CABINET.

A FOURTH APPROACH (SOUTHBOUND) WILL BE CONSTRUCTED AT A FUTURE DATE AND WILL BECOME PART OF THE SIGNALIZED INTERSECTION.

THE FOLLOWING WORK ZONE TRAFFIC CONTROL STANDARDS SHALL BE USED FOR THE PROJECT.

STANDARD NO. MD-105.00	STANDARD NO. MD-105.105 (SHOULDER WORK)
STANDARD NO. MD-105.01	STANDARD NO. MD-105.107 (LANE SHIFT)
STANDARD NO. MD-105.02	STANDARD NO. MD-105.109 (LANE SHIFT)
STANDARD NO. MD-105.101 (FLAGGING OPERATION)	
STANDARD NO. MD-105.103 (INT. FLAGGING OPERATION)	

NOTE: STANDARDS TO BE MODIFIED, BY REPLACING W21-5 SIGN WITH A W29-1 SIGN (ROAD WORK AHEAD)

THE CONTACT PERSONS FOR DISTRICT #3 ARE AS FOLLOWS:

MR. CHARLIE WATKINS DISTRICT ENGINEER PHONE: 301-513-7311	MR. RICHARD L. DAFF, SR. CHIEF, TRAFFIC OPERATIONS DIVISION PHONE: 301-787-7630
MR. MAJID SHAKIB ACTING ASSISTANT DISTRICT ENGINEER - TRAFFIC PHONE: 301-513-7358	MR. JOE GECKLE UTILITY ENGINEER PHONE: 301-513-7350

THE POWER COMPANY REPRESENTATIVE IS:

MS. ROBIN LAW
POTOMAC ELECTRIC AND POWER
PHONE: 301-670-8740

SECTION	QUANTITY	DESCRIPTION
9002	2 EACH	FOUR-CHANNEL LOOP DETECTOR AMPLIFIER (DELAY OUTPUT
9014	5 EACH	12 IN., ONE-WAY, THREE-SECTION (R,Y,G) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
9016	1 EACH	12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
9019	1 EACH	8 IN./12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) TRAFFIC SIGNAL HEAD - MAST ARM MOUNT
9084	1 EACH	EIGHT PHASE, (FULL-TRAFFIC-ACTUATED) CONTROLLER WITH L.A.U., PANEL WITH HARNESS HOUSED IN A NEMA SIZE "6" CABINET - BASE MOUNT CABINET.
9089	87 S.F.	SHEET ALUMINUM SIGNS
	1 EACH	R10-12 SIGN (30 IN. X 36 IN.) (LANE USE CONTROL - "LEFT TURN YIELD ON GREEN") MAST ARM MOUNT
	2 EACH	W3-3 SIGN (48 IN. X 48 IN.) WITH "NEW" PANEL (30 IN X 30 IN.) AND FLAGS - GROUND MOUNT
	1 EACH	M1-5 SIGN "MD 115" (24 IN. X 30 IN.) GROUND MOUNT
	1 EACH	M3-2 "EAST" (24 IN. X 12 IN.) GROUND MOUNT
	1 EACH	M6-1 "ARROW" (21 IN. X 15 IN.) GROUND MOUNT
	1 EACH	ONE PIECE SHIELD ASSEMBLY ON A BLACK BACKGROUND (48 in. x 75 in.) POLE MOUNT: M3-4 SIGN (30 in. x 15 in.) "WEST" M1-5 SIGN (48 in. x 36 in.) "MARYLAND 115" M6-1 SIGN (30 in. x 24 in.) "DIRECTIONAL ARROW - HORIZONTAL POLE MOUNT
9090	24 S.F.	SHEET ALUMINUM SIGNS
	2 EACH	D3-2 SIGN (VARIABLE X 16 IN.) (ADVANCE STREET NAME PANEL) MAST ARM MOUNT
	1 EACH	D-3(1) SIGN (VARIABLE X 16 IN.) (ADVANCE STREET NAME PANEL) MAST ARM MOUNT

SECTION	QUANTITY	DESCRIPTION
1001	1 EACH	MAINTENANCE OF TRAFFIC
2001	2 C.Y.	TEST PIT EXCAVATION
5004	75 L.F.	24 INCH WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
8001	11 C.Y.	FURNISH & INSTALL CONCRETE FOR SIGNAL FOUNDATION
8002	1 EACH	GROUT EXISTING POLE BASE
8011	7 EACH	INSTALL SIGNAL HEAD - ANY TYPE
8020	1 EACH	INSTALL CONTROLLER AND CABINET - BASE MOUNT
8021	500 L.F.	FURNISH AND INSTALL SAW CUT FOR SIGNAL (LOOP DETECTOR)
8022	20 L.F.	FURNISH & INSTALL 1 IN. GALVANIZED STEEL ELECTRICAL CONDUIT FOR DETECTOR SLEEVE
8023	50 L.F.	FURNISH & INSTALL 1 IN. LIQUID TIGHT FLEXIBLE NON-METALLIC ELECTRICAL CONDUIT FOR DETECTOR SLEEVE
8024	10 L.F.	FURNISH AND INSTALL 2 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8027	575 L.F.	FURNISH AND INSTALL 3 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8029	250 L.F.	FURNISH AND INSTALL 3 INCH SCHEDULE 80 RIGID PVC CONDUIT - BORED
8030	20 L.F.	FURNISH AND INSTALL 4 INCH SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED
8033	7 EACH	FURNISH AND INSTALL HANDHOLE
8034	3 EACH	FURNISH & INSTALL GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH
8039	700 L.F.	FURNISH AND INSTALL 12 PAIR COMMUNICATION CABLE, JELLYFILLED (UNDERGROUND)
8040	1600 L.F.	FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG)
8041	850 L.F.	FURNISH & INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED)
8044	75 L.F.	FURNISH & INSTALL ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)
8045	550 L.F.	FURNISH & INSTALL ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)
8046	150 L.F.	FURNISH & INSTALL ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG.)
8047	1 EACH	FURNISH & INSTALL MAST ARM POLE AND TWIN 50 FT/50 FT MAST ARMS
8049	105 L.F.	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
8050	30 L.F.	FURNISH AND INSTALL ELECTRICAL CABLE 1-CONDUCTOR NO. 4 AWG - THHN/THWN
8051	96 L.F.	FURNISH & INSTALL WOOD SIGN SUPPORTS (4 IN. X 4 IN.)
8053	54 S.F.	INSTALL GROUND MOUNTED SIGN
8054	57 S.F.	INSTALL OVERHEAD SIGN
8057	1 EACH	FURNISH & INSTALL LIGHTING BRACKET ARM FOR TRAFFIC SIGNAL STRUCTURE
8065	1 EACH.	INSTALL CONDUIT BEND IN EXISTING BASE
8070	1 EACH	FURNISH & INSTALL CONTROL AND DISTRIBUTION EQUIP (120/240V, 1 PHASE 3 WIRE SYST)
8083	1 EACH	FURNISH & INSTALL MAST ARM POLE WITH 60 FT. MAST ARM

PHASE CHART

	1	2	3	4	5	6	7
PHASE 2 + 5			G	R	R	R	R
2 + 5 CHANGE			G	R	R	R	R
PHASE 2 + 6	G	G	G	G	G	R	R
2 + 6 CHANGE	Y	Y	Y	Y	Y	R	R
PHASE 4	R	R	R	R	R	G	G
4 CHANGE	R	R	R	R	R	Y	Y
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R

A.B.C.D. } 2-CONDUCTOR ELECTRICAL CABLE
(ALUMINUM SHIELDED)

G.H.I } 5-CONDUCTOR ELECTRICAL
CABLE (NO. 14 A.W.G.)

J.K.L.M } 7-CONDUCTOR ELECTRICAL
CABLE (NO. 14 A.W.G.)

P.R.S } 1 WIRE ELECTRICAL
CABLE (NO. 4 A.W.G.)

N } 2-CONDUCTOR ELECTRICAL CABLE
(NO. 12 A.W.G.)

O } STRANDED BARE COPPER
GROUND WIRE (NO. 6 A.W.G.)

I/C } 12 PAIR JELLY-FILLED
COMMUNICATION CABLE -
UNDERGROUND (NO. 19 A.W.G.)

LW - LOOP WIRE (NO. 14 A.W.G.)
PF - PROPOSED OVERHEAD FEED
+ - 3/4 IN. x 10 FT. GROUND ROD

A,B,C,D, E,F,T	} 2-CONDUCTOR ELECTRICAL CABLE (ALUMINUM SHIELDED)	N	} 2-CONDUCTOR ELECTRICAL CABLE (NO. 12 A.W.G.)
G,H,I		O	
J,K,L,M	} 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)	I/C	} STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
P,R,S			
	} 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G.)		} 12 PAIR JELLY-FILLED COMMUNICATION CABLE - UNDERGROUND (NO. 19 A.W.G.)
	} 1 WIRE ELECTRICAL CABLE (NO. 4 A.W.G.)	LW	- LOOP WIRE (NO. 14 A.W.G.)
		PF	- PROPOSED OVERHEAD FEED
		+	- 3/4 IN. x 10 FT. GROUND ROD

REVISIONS:							APPROVALS:
							CHIEF SIGNAL DESIGN SECTION
							ASST. DISTRICT ENGINEER TRAFFIC
							CHIEF TRAFFIC ENGINEERING DESIGN DIVISION
							DIRECTOR OFFICE OF TRAFFIC & SAFETY

**RK
&K** RUMMEL, KLEPPER
& KAHL, LLP
CONSULTING ENGINEERS

81 MOSHER STREET
BALTIMORE, MARYLAND 21217

TEL: (410) 728-2900 FAX: (410) 383-3270

MDOT - STATE HIGHWAY ADMINISTRATION Office of Traffic & Safety TRAFFIC ENGINEERING DESIGN DIVISION LOG			
DRAWN BY: JAB/BSH DES. BY: JAB/BSH CHK. BY: DLA		MD 115 @ NEEDWOOD RD GENERAL INFORMATION COUNTY:	
DATE: JANUARY, 1999 SCALE: N.T.S.		F.A.P. NO. N/A S.H.A. NO. AW277A55/B55 TS/STD. NO.: 3820	